

**WHAT IS CLAIMED IS:**

1. A processing machine, comprising: a machine frame; a processing element arranged so as to be movable relative to the machine frame; at least one drive shaft for moving the processing element relative to the machine frame; and a floating-bearing arrangement coupling the at least one drive shaft to the machine frame and the processing element, wherein the floating-bearing arrangement comprises at least two rolling-contact bearings coupled to one another and having a first rolling-contact bearing that is coupled with the drive shaft, and a second rolling-contact bearing that is arranged on the machine frame, and a common connecting bearing shell, wherein the connecting bearing shell supports rolling-contact bodies of the first and second rolling-contact bearings and wherein the bearing arrangement comprises a drive for moving the connecting bearing shell.

2. A processing machine according to claim 1, comprising a sanding machine wherein said processing element comprises an elongated pressure element for abrasive and wherein the pressure element is supported by the machine frame by means of at least two drive shafts located at a distance from one another in the longitudinal direction (L) that comprises a main expansion direction, and wherein at least one of the drive shafts is coupled with the machine frame by means of the floating-bearing arrangement.

3. A processing machine according to Claim 1, wherein the drive shaft is rotatably mounted on a support, and the floating bearing comprises a first rolling-contact bearing connected to the support and a second rolling-contact bearing connected to the machine frame, the rolling-contact bearings being designed as linear bearings and being coupled with one another by means of a spindle that serves as a connecting bearing shell, which extends in a main expansion direction (L) of the processing element and/or of the machine frame and is reciprocally movable in the main expansion direction.

4. A processing machine according to Claim 2, further comprising a spring element acting in the main expansion direction (L) to couple the support with the machine frame

5. A processing machine according to Claim 3, comprising two spindles which extend parallel to one another in the longitudinal direction (L) of the pressure element and which in each case comprise said floating contact bearings.

6. A processing machine according to claim 1, wherein the at least one drive shaft comprises an eccentric shaft.

7. A processing machine according to Claim 3, further comprising a pressure element pre-stressing the support in the axial direction of the drive shaft on the machine frame.

8. A processing machine according to claim 1, further comprising at least one toothed-belt drive for driving the at least one drive shaft, and a tensioning device (S) for pre-tensioning the toothed-belt drive.

9. A floating-bearing arrangement, comprising a first rolling-contact bearing and a second rolling-contact bearing, wherein the first and second rolling-contact bearings have a common connecting bearing shell which supports the rolling-contact bodies of the first and second rolling-contact bearings; and a drive device for moving the common connecting bearing shell relative to the rolling-contact bodies.

10. A floating-bearing arrangement according to Claim 9, wherein the drive device drives the common connecting bearing shell in a reciprocating manner or a rotating manner.

11. A floating-bearing arrangement according to Claim 9, wherein an outer ring of the first rolling-contact bearing is enclosed by an inner ring of the second rolling-contact bearing, and the outer ring together with the inner ring forms the connecting bearing shell.

12. A floating-bearing arrangement according to Claim 11, wherein the first rolling-contact bearing is arranged offset relative to the axis of the second rolling-contact bearing.

13. A floating-bearing arrangement according to Claim 9, wherein the first and second rolling-contact bearings comprise linear shaft bearings that are coupled with one another by means of a connecting spindle that serves as a driven connecting bearing shell, extends in the bearing axial direction and is movable in a reciprocating manner.

14. A floating-bearing arrangement according to Claim 13, further comprising second and third rolling-contact bearings provided on both sides of the first rolling-contact bearing along the connecting spindle.

15. A floating-bearing arrangement according to Claim 14, comprising at least two connecting spindles arranged parallel to one another, the connecting spindles each supporting said first, second and third rolling-contact bearings.

16. A method for mounting a rotatably driven shaft with a floating-bearing arrangement according to claim 9, comprising the step of essentially constantly moving the common connecting shell of the first and second rolling-contact bearings.